

# Curriculum Vitae

Prof. Dr. Lars Röntzsch



## General

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h-index 26 (as of 2026-03-18)  
RI score 1373 (as of 2026-03-18)

## Employment History

From 07/2022 Full Professor (W3), Chair of Thermal Energy Technology and Head of the Hydrogen Research Center, Brandenburg University of Technology, Cottbus, Germany  
From 01/2025 Vice Dean for International Affairs, Faculty of Mechanical Engineering, Electrical and Energy Systems, Brandenburg University of Technology  
01/2013–06/2022 Head of Department, Fraunhofer-Gesellschaft  
09/2007–12/2012 Group Manager, Fraunhofer-Gesellschaft  
05/2007–08/2007 Research Staff, Institute of Materials Science, Dresden University of Technology  
11/2003–04/2007 Research Staff, Institute for Ion Beam Physics and Materials Research, Research Center Dresden-Rossendorf

## Education

12/2007 Graduation: *Doctor rerum naturalium* (grade: summa cum laude)  
09/2003 Graduation: *Diplom-Physiker* (grade: very good)  
09/2000–05/2001 Studies of Physics, Philosophy and International Relations at Boston University  
10/1997–09/2003 Studies of Physics at Dresden University of Technology  
07/1996–08/1997 Military service, German Armed Forces  
06/1996 Abitur (grade: 1.0)  
09/1984–06/1996 School attendance

## Skills and Expertise

Computer C/C++, COMSOL Multiphysics, Epsilon Professional, ASPEN, Kinetic Monte Carlo, Basic,  $\text{\LaTeX}$ , PovRay, RasMol, TRIM, TRIDYN, FlexPDE, Maple, Origin, Adobe CS, Corel Draw, MS Office  
Experimental Energy technology, hydrogen and fuel cells, thermochemical heat storage, renewable fuels, e-fuels, materials science, electrochemistry, thin film deposition, thermoanalysis, metallurgy, metal powder technology, sintering, ion beam technology, electron microscopy, diffraction and scattering, X-ray and neutron imaging  
Languages German (native speaker), English (fluent), Spanish (basic), Russian (school level), Latin (school level), Ancient Greek (school level)  
Interests Tennis, ancient Egyptian history and culture, architecture, historical glazing techniques, fruit breeding

## Awards

2015	IQ Innovationspreis Mitteldeutschland (category <i>Energy · Environment · Solar</i> ), Naumburg, Germany
2013	f-cell Award (category <i>Science</i> ), Stuttgart, Germany
2010	E.ON International Research Initiative Award
2007	Fraunhofer Attract Grant
2004	E-MRS Young Scientist Award, Strasbourg, France
2004	IBMM 2004 Poster Award, Monterey, USA
2000–2001	Scholarship of the Kulturstiftung Dresden der Dresdner Bank

## University Teaching

Responsibility for the following modules and lectures for various Bachelor's and Master's programmes at BTU:

<i>Title</i>	<i>No.</i>	<i>Description</i>
Renewable Energy Technologies for Power Supply	12165	<a href="#">Description</a>
Energiewandlung (in German)	12294	<a href="#">Description</a>
Gasversorgung (in German)	12985	<a href="#">Description</a>
Hydrogen and Fuel Cells	13926	<a href="#">Description</a>
Power Generation Laboratory and Simulation Project	14290	<a href="#">Description</a>
Data Analytics and Process Modelling	14414	<a href="#">Description</a>
Forschungsseminar und Ringlabor Energietechnik (in German)	35317	<a href="#">Description</a>
Kraftwerkstechnik 1 (in German)	35320	<a href="#">Description</a>
Planung, Bau und Instandhaltung von Energieversorgungsanlagen (in German)	35321	<a href="#">Description</a>
Technik und Nutzung regenerativer Energiequellen (in German)	35322	<a href="#">Description</a>
Power Plant Technology 1	35449	<a href="#">Description</a>
Power Plant Technology 2	35450	<a href="#">Description</a>

## List of Publications

- [81] K. Danila, P. Kunz, L. Röntzsch, *Low-temperature electrolysis model optimized for improved performance in dynamic simulations*, International Journal of Hydrogen Energy, vol. 223, pp. 154294 (2026). [DOI: 10.1016/j.ijhydene.2026.154294](#)
- [80] A. Reimann, P. Kohlenbach, L. Röntzsch, C. Schneider, *Neural network-based model predictive control for waste heat recovery from PEM electrolysis with heat pumps*, Energy Conversion and Management, vol. 356, pp. 121305 (2026). [DOI: 10.1016/j.enconman.2026.121305](#)
- [79] S. Jana, L. Röntzsch, *Dual-stage thermochemical hydrogen compressor: Numerical analysis and simulation study*, submitted (2025).
- [78] N. P. Sakkas, F. Gillung, K. Thummar, R. Abang, L. Röntzsch, *Advanced pressurized alkaline water electrolysis at high temperatures up to 130 °C*, International Journal of Hydrogen Energy, vol. 149, pp. 150075 (2025). [DOI: 10.1016/j.ijhydene.2025.150075](#)
- [77] K. Danila, P. Kunz, L. Röntzsch, *Dynamic Operation of Low-Temperature Electrolyzer Systems in Modular Large-Scale Chemical Plants*, Chemie Ingenieur Technik, vol. 97, issue 5, pp. 525–535 (2025). [DOI: 10.1002/cite.202400140](#)
- [76] S. Jana, P. Muthukumar, L. Röntzsch, *Transient Analysis and Performance Prediction of a Metal Hydride Based Thermal Energy Storage System with Integrated Cooling and Heat Upgradation*, Heat Transfer Engineering, pp. 1–13 (2025). [DOI: 10.1080/01457632.2025.2521599](#)
- [75] A. Reimann, P. Kohlenbach, L. Röntzsch, C. Schneider, *Development and validation of a quasi-2D electrolysis stack model with a focus on dynamic thermal behavior*, International Journal of Hydrogen Energy, vol. 118, pp. 457–471 (2025). [DOI: 10.1016/j.ijhydene.2025.03.225](#)

- [74] P. Sharma, L. Röntzsch, V. K. Shahia, *Advancements towards optimization of metal–organic framework-based polymer electrolyte membranes for aqueous redox flow batteries*, *Journal of Materials Chemistry A*, vol. 13, issue 17, pp.11952–11988 (2025). [DOI: 10.1039/D4TA08720H](https://doi.org/10.1039/D4TA08720H)
- [73] S. K. Sampangi, L. Röntzsch, *Electrolyzer – Polymer-Electrolyte Membrane Electrolyzer / State of the Art Technique and Systems*, in J. Garche et al. (Eds.): *Encyclopedia of Electrochemical Power Sources*, 2<sup>nd</sup> edition, vol. 6, pp. 79–94, ISBN 9780323958226, Elsevier, 2025. [DOI: 10.1016/B978-0-323-96022-9.00237-1](https://doi.org/10.1016/B978-0-323-96022-9.00237-1)
- [72] A. Reimann, P. Kohlenbach, L. Röntzsch, *Development of a novel quasi-2D PEM Electrolyzer Model in Modelica*, Proceedings of the 15<sup>th</sup> International Modelica Conference, Aachen, 9-11 October 2023, Linköping University Electronic Press, 2023. [DOI: 10.3384/ecp20463](https://doi.org/10.3384/ecp20463)
- [71] S. Metz, T. Smolinka, C. I. Bernäcker, S. Loos, T. Rauscher, L. Röntzsch, M. Arnold, M. Jahn, M. Kusnezoff, G. Kolb, U.-P. Apfel, C. Doetsch, *Producing hydrogen through electrolysis and other processes*, pp. 203–252 in R. Neugebauer (Ed.): *Hydrogen Technologies*, Berlin, Springer Vieweg, 2023, ISBN 9783031162961. [DOI: 10.1007/978-3-031-22100-2\\_9](https://doi.org/10.1007/978-3-031-22100-2_9)
- [70] Ö. Akay, A. Bashkatov, E. Coy, K. Eckert, K. E. Einarsrud, A. Friedrich, B. Kimmel, S. Loos, G. Mutschke, L. Röntzsch, M. D. Symes, X. Yang, K. Brinkert, *Electrolysis in reduced gravitational environments: current research perspectives and future applications*, *npj Microgravity*, vol. 8, article no. 56 (2022). [DOI: 10.1038/s41526-022-00239-y](https://doi.org/10.1038/s41526-022-00239-y)
- [69] N. Kardjilov, A. Hilger, H. Markötter, A. Griesche, R. Woracek, F. Heubner, L. Röntzsch, M. Grosse, I. Manke, J. Banhart, *Quantification of hydrogen in metals applying neutron imaging techniques*, *Microscopy and Microanalysis*, vol. 28, suppl. 1, p. 1666 (2022). [DOI: 10.1017/S1431927622006638](https://doi.org/10.1017/S1431927622006638)
- [68] C. I. Bernäcker, T. Gimpel, A. Bomm, T. Rauscher, S. Mauermann, M. Li, E. G. Hübner, W. Schade, L. Röntzsch, *Short pulse laser structuring as a scalable process to produce electrodes for large alkaline water electrolyzers*, *Journal of Power Sources*, vol. 538, pp. 231572 (2022). [DOI: 10.1016/j.jpowsour.2022.231572](https://doi.org/10.1016/j.jpowsour.2022.231572)
- [67] S. Metz, T. Smolinka, C. I. Bernäcker, S. Loos, T. Rauscher, L. Röntzsch, M. Arnold, M. Jahn, M. Kusnezoff, G. Kolb, U.-P. Apfel, C. Doetsch, *Wasserstoffherzeugung durch Elektrolyse und weitere Verfahren*, pp. 207–258 in R. Neugebauer (Ed.): *Wasserstofftechnologien*, Berlin, Springer Vieweg, 2022, ISBN 9783662645116. [DOI: 10.1007/978-3-662-64939-8\\_9](https://doi.org/10.1007/978-3-662-64939-8_9)
- [66] F. Foroughi, C. I. Bernäcker, L. Röntzsch, B. G. Pollet, *Understanding the Effects of Ultrasound (408 kHz) on the Hydrogen Evolution Reaction (HER) and the Oxygen Evolution Reaction (OER) on Raney-Ni in Alkaline Media*, *Ultrasonics Sonochemistry*, vol. 84, pp. 105979 (2022). [DOI: 10.1016/j.ultsonch.2022.105979](https://doi.org/10.1016/j.ultsonch.2022.105979)
- [65] C. I. Bernäcker, S. Loos, T. Rauscher, T. Weißgärber, B. Kieback, L. Röntzsch, *Pulvermetallurgie zur Herstellung von Elektroden für Power-to-X-Anwendungen*, pp. 147–157 in C. Broeckmann, H. Danninger, T. Weißgärber (Eds.): *Pulvermetallurgie – Nachhaltige Lösungen und neue Märkte*, Proceedings of the 39<sup>th</sup> Hagener Symposium, Heimdall-Verlag, Witten, 2021, ISBN 9783946537700.
- [64] M. Vogt, F. Heubner, T. Weißgärber, L. Röntzsch, *Nachhaltige Wasserstoff-on-demand-Lösung – Gesteuerte Hydrolysereaktion zur ubiquitären Wasserstoffversorgung*, *HZwei* (ISSN: 1862-393X), vol. 20 (4), pp. 28–30 (2020).
- [63] R. Baumann, T. Rauscher, C. I. Bernäcker, C. Zwahr, T. Weißgärber, L. Röntzsch, A. F. Lasagni, *Laser Structuring of Open Cell Metal Foams for Micro Scale Surface Enlargement*, *Journal of Laser Micro/Nanoengineering*, vol. 15, pp. 132–138 (2020). [DOI: 10.2961/jlmn.2020.02.2010](https://doi.org/10.2961/jlmn.2020.02.2010)
- [62] F. Heubner, T. Weißgärber, L. Röntzsch, *Solid Hydrogen Carriers als H<sub>2</sub>-Speicher*, *HZwei* (ISSN: 1862-393X), vol. 20 (2), pp. 26–29 (2020).

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- [60] L. Röntzsch, F. Heubner, S. Mauermann, T. Weißgärber, B. Kieback, *Fortschrittliche Metallhydrid-Werkstoffe für die Wasserstofftechnologie*, pp. 245–262 in H. Danninger, L. Sigl, M. Schneider (Eds.): *Pulvermetallurgie – Schlüsseltechnologie für innovative Systemlösungen*, Proceedings of the 38<sup>th</sup> Hagener Symposium, Heimdall-Verlag, Witten, 2019, ISBN 9783946537656.
- [59] T. Rauscher, C. I. Bernäcker, S. Loos, M. Vogt, B. Kieback, L. Röntzsch, *Spark-Plasma-Sintered Porous Electrodes for Efficient Oxygen Evolution in Alkaline Water Electrolysis*, Electrochimica Acta, vol. 317, pp. 128–138 (2019). [DOI: 10.1016/j.electacta.2019.05.102](https://doi.org/10.1016/j.electacta.2019.05.102)
- [58] M. Ďurovič, J. Hnát, C. I. Müller, T. Rauscher, L. Röntzsch, M. Paidar, K. Bouzek, *Nanocrystalline  $Fe_{60}Co_{20}Si_{10}B_{10}$  as a cathode catalyst for alkaline water electrolysis: Impact of a surface activation*, Electrochimica Acta, vol. 306, pp. 688–697 (2019). [DOI: 10.1016/j.electacta.2019.03.107](https://doi.org/10.1016/j.electacta.2019.03.107)
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- [55] F. Heubner, A. Hilger, N. Kardjilov, I. Manke, B. Kieback, Ł. Gondek, J. Banhart, L. Röntzsch, *In operando stress measurement and neutron imaging of metal hydride composites for solid-state hydrogen storage*, Journal of Power Sources, vol. 397, pp. 262–270 (2018). [DOI: 10.1016/j.jpowsour.2018.06.093](https://doi.org/10.1016/j.jpowsour.2018.06.093)
- [54] A. Gabler, C. I. Müller, T. Rauscher, T. Gimpel, R. Hahn, M. Köhring, B. Kieback, L. Röntzsch, W. Schade, *Ultrashort-pulse laser structured titanium surfaces with sputter-coated platinum catalyst as hydrogen evolution electrodes for alkaline water electrolysis*, International Journal of Hydrogen Energy, vol. 43, pp. 7216–7226 (2018). [DOI: 10.1016/j.ijhydene.2018.02.130](https://doi.org/10.1016/j.ijhydene.2018.02.130)
- [53] T. Rauscher, C. I. Müller, A. Gabler, T. Gimpel, M. Köhring, B. Kieback, W. Schade, L. Röntzsch, *Femtosecond-laser structuring of Ni electrodes for highly active hydrogen evolution*, Electrochimica Acta, vol. 247, pp. 1130–1139 (2017). [DOI: 10.1016/j.electacta.2017.07.074](https://doi.org/10.1016/j.electacta.2017.07.074)
- [52] A. Gabler, C. I. Müller, T. Rauscher, M. Köhring, B. Kieback, L. Röntzsch, W. Schade, *Ultrashort pulse laser-structured nickel surfaces as hydrogen evolution electrodes for alkaline water electrolysis*, International Journal of Hydrogen Energy, vol. 42, pp. 10826–10833 (2017). [DOI: 10.1016/j.ijhydene.2017.02.006](https://doi.org/10.1016/j.ijhydene.2017.02.006)
- [51] F. Heubner, S. Mauermann, B. Kieback, L. Röntzsch, *Stress development of metal hydride composites for high density hydrogen storage applications*, Journal of Alloys and Compounds, vol. 705, pp. 176–182 (2017). [DOI: 10.1016/j.jallcom.2017.02.113](https://doi.org/10.1016/j.jallcom.2017.02.113)
- [50] M. Tegel, S. Schöne, B. Kieback, L. Röntzsch, *An efficient hydrolysis of  $MgH_2$ -based materials*, International Journal of Hydrogen Energy, vol. 42, pp. 2167–2176 (2017). [DOI: 10.1016/j.ijhydene.2016.09.084](https://doi.org/10.1016/j.ijhydene.2016.09.084)
- [49] I. Bürger, M. Dieterich, C. Pohlmann, L. Röntzsch, M. Linder, *Standardized hydrogen storage module with high utilization factor based on metal hydride-graphite composites*, Journal of Power Sources, vol. 342, pp. 970–979 (2017). [DOI: 10.1016/j.jpowsour.2016.12.108](https://doi.org/10.1016/j.jpowsour.2016.12.108)

- [48] C. Cremers, L. Röntzsch, *Brennstoffzellen als Range-Extender*, pp. 85–89, in R. Neugebauer (Ed.): *Ressourceneffizienz*, Springer Vieweg, Berlin, 2017, ISBN 9783662528884. [DOI: 10.1007/978-3-662-52889-1](https://doi.org/10.1007/978-3-662-52889-1)
- [47] A. Goldberg, C. Pohlmann, L. Röntzsch, C. Freitag, A. T. Tagne Saha, S. Ziesche, U. Partsch, *Highly efficient and long-term stable micro fuel cell system based on ceramic multilayer technology*, 6<sup>th</sup> Electronic System-Integration Technology Conference (ESTC), Grenoble, France, pp. 1–6 (2016). [DOI: 10.1109/estc.2016.7764494](https://doi.org/10.1109/estc.2016.7764494)
- [46] M. Tegel, L. Röntzsch, *PowerPaste für mobile und autarke Brennstoffzellen*, HZwei (ISSN: 1862-393X), vol. 16 (4), pp. 35–37 (2016).
- [45] T. Rauscher, C. I. Müller, A. Schmidt, B. Kieback, L. Röntzsch, *Ni–Mo–B alloys as cathode material for alkaline water electrolysis*, International Journal of Hydrogen Energy, vol. 41, pp. 2165–2176 (2016). [DOI: 10.1016/j.ijhydene.2015.12.132](https://doi.org/10.1016/j.ijhydene.2015.12.132)
- [44] C. I. Müller, K. Sellschopp, M. Tegel, T. Rauscher, B. Kieback, L. Röntzsch, *The activity of amorphous iron-based alloys as electrode materials for the hydrogen evolution reaction*, Journal of Power Sources, vol. 304, pp. 196–206 (2016). [DOI: 10.1016/j.jpowsour.2015.11.008](https://doi.org/10.1016/j.jpowsour.2015.11.008)
- [43] M. Dieterich, C. Pohlmann, I. Bürger, M. Linder, L. Röntzsch, *Long-term cycle stability of metal hydride-graphite composites*, International Journal of Hydrogen Energy, vol. 46, pp. 16375–16392 (2015). [DOI: 10.1016/j.ijhydene.2015.09.013](https://doi.org/10.1016/j.ijhydene.2015.09.013)
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- [39] J. Fu, M. Tegel, B. Kieback, L. Röntzsch, *Dehydrogenation properties of doped  $LiAlH_4$  compacts for hydrogen generator applications*, International Journal of Hydrogen Energy, vol. 39, pp. 16362–16371 (2014). [DOI: 10.1016/j.ijhydene.2014.08.023](https://doi.org/10.1016/j.ijhydene.2014.08.023)
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- [35] J. Gluch, S. Niese, C. Jung, L. Röntzsch, E. Zschech, B. Kieback, *Electron and X-ray tomography of iron/iron oxide redox reactions for large-scale hydrogen storage*, Microscopy and Microanalysis, vol. 19, suppl. 2, pp. 578–579 (2013). [DOI: 10.1017/s1431927613004881](https://doi.org/10.1017/s1431927613004881)

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- [31] C. Pohlmann, L. Röntzsch, T. Weißgärber, B. Kieback, *Heat and gas transport properties in pelletized hydride-graphite composites for hydrogen storage applications*, International Journal of Hydrogen Energy, vol. 38, pp. 1685–1691 (2013). [DOI: 10.1016/j.ijhydene.2012.09.159](https://doi.org/10.1016/j.ijhydene.2012.09.159)
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